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**PRIMARY INDUSTRY AND FISHERIES**

**TECHNICAL BULLETIN  
No. 164**



**GROSS MARGIN BUDGETS  
FOR  
THE DOUGLAS - DALY REGION  
NORTHERN TERRITORY,  
1990/91**

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**NORTHERN TERRITORY,**  
**1990/91**

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**DEPARTMENT OF PRIMARY INDUSTRY AND FISHERIES**

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'The bleached bones of those who've lost at the farming game litter the uncertain, arduous path to the pastures of plenty ....'

Makeham and Malcolm (1988)

Farmers (especially under Territory conditions) need to be Houdinis.

They need to be scientists (to get the growing right), they need to be engineers (because it's a long way into town to get something fixed), they need to be good rainedancers (to turn the water on and off), economists (to make sure they make a quid), confidence tricksters (when visiting the bank manager), social workers (to control the internal family feuds) and fortunetellers.

And then, everything needs to be done before breakfast.

Comparisons have been drawn between farmers and professional gamblers. Both punt on uncertain outcomes that are the upshot of a number of factors and each has a limited amount of resources to play with.

If the gambler has plenty of cash, he can afford to take big risks and lose. If he's somewhere around even-stevens, he may tread carefully and hedge his bets. If he's low on funds, he might again take large risks - for the chance of getting out of the slump in one risky step.

Either way, those who succeed tend to be those who have been able to stay in the game for some time and have gone with the odds. That, or the gods have smiled on them.

This booklet focuses on some practical economics after trying to tie in all those other things that need to be done 'before breakfast'.

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## 1. INTRODUCTION AND SOME IMPORTANT NOTES

Standardised gross margin budgets for the Douglas-Daly region are presented in this booklet. They are a guide to the costs and returns that can be expected if specific conditions (relating to climate, prices, management, etc.) prevail. If these conditions are not met, then the gross margin estimates can be wide of the mark. That doesn't mean we're wasting our time, though. For instance, the budgets can be looked at more closely to see how variations in yields and prices effect cropping returns. They can also be used as a basis for assessing the risk associated with planting a certain crop measured in dollar terms. In any case, farmers are encouraged to prepare gross margin estimates based on their own situation, experience, and expectations since these are likely to be different from those assumed in the standardised budgets.

Standardised gross margin (GM) budgets provide a benchmark for comparing farm specific gross margins (eg. you can compare your GM for sorghum against the 'standardised GM' budget for sorghum) and are useful for comparing the profitability of different crops (eg. maize v sorghum).

GM analysis is a simplified budgeting technique since it ignores overhead costs. Overhead costs can be safely ignored, however, if comparing activities of a similar nature (eg no-till maize vs no-till sorghum) that use existing farm plant and equipment. If new capital equipment is required (eg. installation of irrigation equipment, purchase of minimum tillage equipment, purchase of livestock) or if activities are not of a similar nature (eg fattening steers vs no-till maize), then more complicated budgeting is required. Contact the DPIF for further information.

As a rule of thumb, a GM of between \$150 - \$250 /ha is required for a broadacre farm in the Douglas-Daly region to breakeven (ie. to cover overhead costs). Cattle enterprises can operate profitably at much lower GMs/ha. The requirement for specialty cropping areas is variable. In general, a large component of overhead costs may be loan repayments and interest charges.

Once the techniques of farm budgeting have been mastered, they become second nature in evaluating the uncertain outcomes that a farmer faces. Budgeting after all, is merely attaching dollar values to those decisions that need to be made during the production process. Very few people in the farming game today are in a position where they don't need to keep a close eye on their finances.

The alternative option, making decisions on the basis of gut-feeling or guess-timation, seems foolhardy, especially under the deteriorating terms of trade faced by farmers these days.

## 2. WHAT IS A GROSS MARGIN ?

A gross margin is the difference between gross income and total variable costs for a farm activity.

The total gross margin for a farm is the sum of all individual activity gross margins.

Gross Income can be measured by total receipts received from the sales of produce plus the value of any retained output.

Variable Costs (also known as running costs). As the name implies, these costs vary with the size of farm activities. For example, if the area sown to sorghum is increased from 200 hectares to 400 hectares then roughly twice the amount of seed and fertilizer will be required. Other variable costs include: fuel, oil and repairs and maintenance to machinery; casual labour costs; weed and pest control; harvesting and marketing costs. Variable costs are distinct from overhead costs.

Farm Activity refers to the particular method employed in producing a commodity. For example, minimum tillage maize and conventional tillage maize are two different farm activities. Both, however, are described by the more general expression of a maize enterprise.

Overhead Costs (or fixed costs). These costs are difficult to avoid each year and are unlikely to vary with changes in the levels of different farm activities, unless some capital expenditure is required for these changes to occur. Overhead costs include the wages of permanent workers, living expenses of the family, finance costs, insurance, telephone, replacement of buildings and machines, business expenses, rates and land taxes. Overhead costs plus variable costs represent total costs.

The relationship between the total gross margin and farm overhead costs provides a useful guide when computed on a per hectare basis. The average gross margin per hectare should be greater than the average overheads per hectare for the farm to make money.

Gross margins alone do not provide a basis for farm planning. Crop rotations, demands on farm labour, finance, risk and other constraints need to be considered in the context of farm objectives. Gross margins are simply the most commonly used, first-step, budgeting technique.

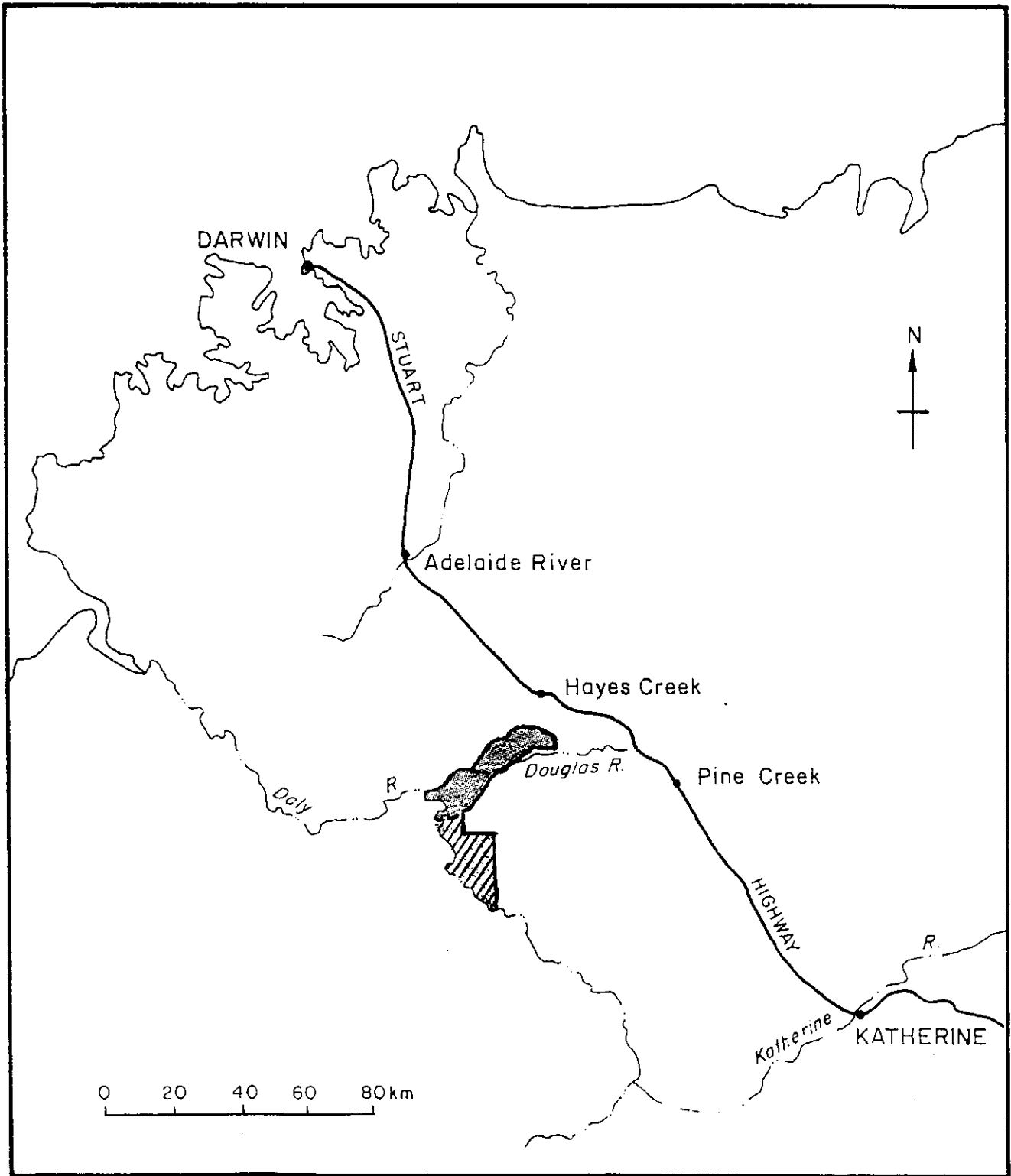


Fig. 1. The Douglas-Daly Region.

### 3. THE DOUGLAS-DALY REGION

The area surrounding the junction of the Douglas and Daly river systems has been the major crop growing area in the Northern Territory in recent years. The general location of the region is given in Figure 1, and in more detail in Fig 2. The other major cropping area in the NT is around Katherine.

Cropping on a broadacre scale was initiated on Tipperary Station in the 1960's. It was not until the early 1980's, however, that major new agricultural developments occurred. The initiative came from the N.T. government, which acquired 20,000 hectares of Douglas Station and subsequently the whole of Oolloo and Fish River Stations. The Douglas-Daly and Oolloo acquisitions were subdivided into individual farm lots each comprising approximately 1,000 hectares of arable land and larger areas of non-arable scrub, resulting in blocks ranging in size from 4 500 to 14 000 hectares. The attractiveness of the region was considered to be its relatively good soils (commonly known as 'Blain' and 'Tippera' soil types), permanent water, proximity to the Douglas-Daly Research Farm and road access. Available soil water, soil temperatures, erosion factors and soil fertility (Williams, Day, Isbell and Reddy, 1985) have been considered the limiting agronomic factors in farm production to date.

Arable land areas in the region were cleared and farmed either under contract to the Agricultural Development and Marketing Authority (ADMA), or in some cases independently, after purchasing the land from the government.

In 1990/91 there are six broadacre farms and two pastoral blocks in the ADMA Douglas-Daly acquisition area, all of which are now operating independently from the auspices of ADMA. Since the disassociation with ADMA, there has been more diversification in farming operations in the region and a distinct shift towards cattle enterprises.

Crop production in the N.T. is still at an early development phase and is small relative to the Australian States. The farmers readily testify that broadacre - scale farming in the semi-arid tropics is quite a challenge, and there is very little experience world-wide to draw upon. An appraisal of the long term economic potential for the industry would be premature at this stage without more experience and results in the field. Farm-gate production costs seem likely to remain higher than most Australian States, however, there are cost advantages in proximity to the local and Asian markets. Current local demand for stockfeed grains and pulses remains unmet, whilst there is interstate and export market potential for some of the high value crops from the N.T. (esp. sesame, peanuts and mungbeans).



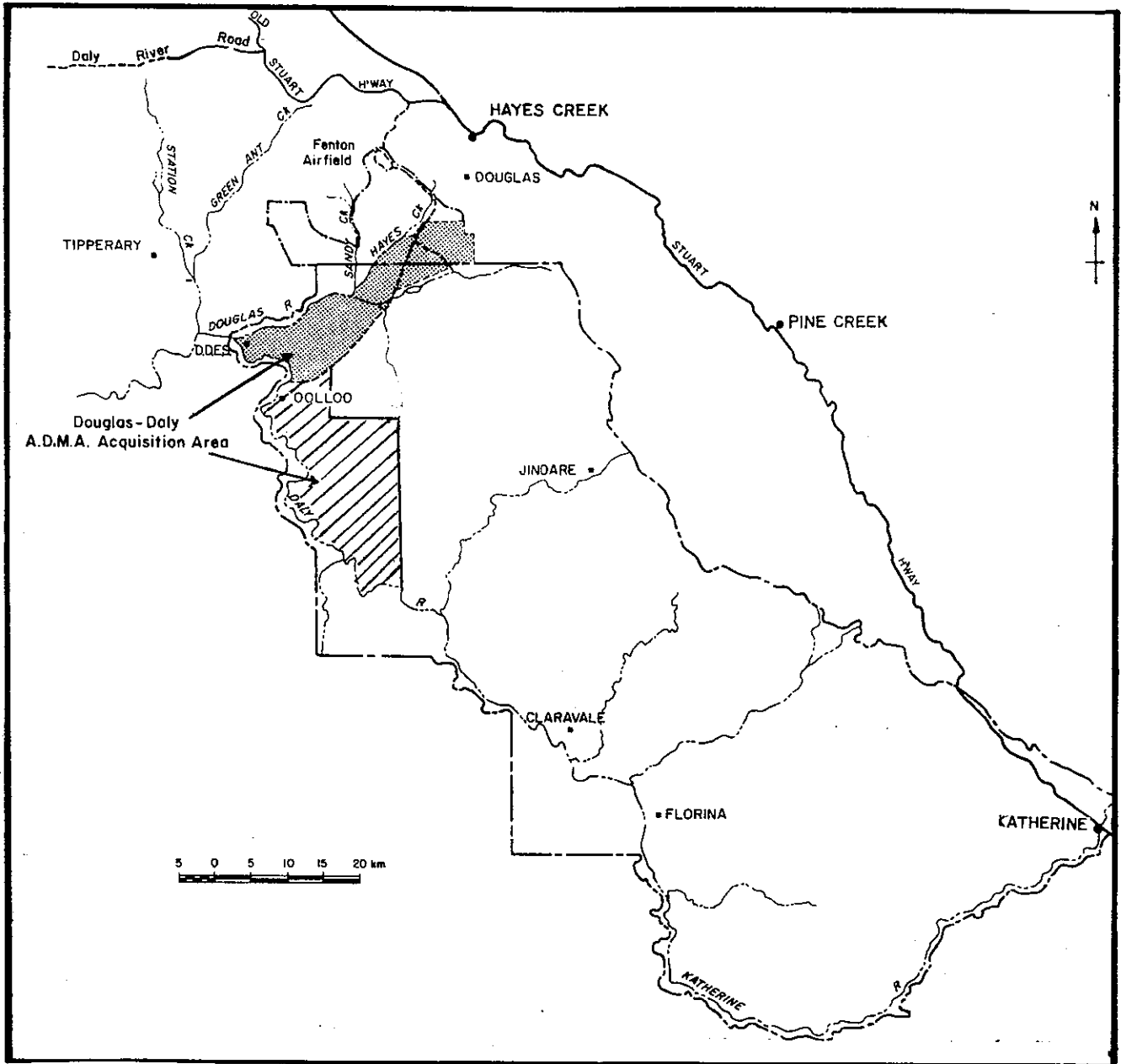


Fig. 2. Location Map. Douglas-Daly A.D.M.A. Acquisition Area.

#### 4. SOME COMMENTS ON THE STANDARDISED GROSS MARGIN BUDGETS

1. Not all machinery costs are included in the gross margins. Only repairs and maintenance costs to machinery plus fuel and oil costs are included. All other costs, including depreciation, interest, provision of shelter, operators labour and insurance costs are treated as overhead costs. The ability to cover this latter group of costs is usually measured by preparing a whole farm budget.

The fuel, oil and R & M bill was calculated as an average of 10,000 rated hours of use from tractors purchased new and 1200-2400 rated hours use from new implements. This is merely a simple accounting technique. Individual growers should have a better idea of their own fuel, oil, repairs and maintenance costs. Actual machinery running costs for a particular farm may be much higher if old, worn-out equipment is used.

Fuel costs have been budgeted at 75¢/L. This is net of the NT government tax rebate and the customs and excise rebate for on-farm use (approx. 25¢/L). At the time of writing there is some uncertainty over fuel prices due to the Gulf crisis.

2. Seeding rates will vary, depending on the weight of seed, germination percentage and individual's sowing practices.
3. Fertilizer rates should be varied with the nutrient status of the soil and particular crop requirements. Ask your district agronomist if you need advice on this matter.

The NT fertilizer freight subsidy for 1990-1 has been approved at \$95.00/tonne or actual freight cost (whichever is lower). Claims should be submitted before June 1991. The minimum claim is for 2 tonnes, the maximum is 300 tonnes per producer.

4. Herbicide and pesticide application rates vary with climate, incidence of insects, etc. It is illegal to use any herbicide or pesticide that is not registered for use in the NT and to use registered chemical contrary to their label specifications. Contact the DPIF for further information if required.
5. Crop prices are preliminary forecasts only.
6. Trade names are used in this publication solely for the purpose of providing specific information. Mention of a registered trade name does not constitute a guarantee or warranty of the product by the DPI&F, nor does it endorse the product over other brand names not mentioned. Trade names have been included because producers seem to identify more readily with these than with chemical names.

**5.1 BROADACRE CROPS**

GROSS MARGIN BUDGET

Enterprise Name: NO-TILL GRAIN SORGHUM

Region: Douglas/Daly

Date: October 1990

				\$/ha	Your Estimate
<b>INCOME</b>					
Yield	2.5 t/ha	@	\$210.00 /tonne (on farm)	525.00	.....
Other Income:	fertiliser subsidy				
	250 kg/ha	@	\$95.00 /tonne	23.75	.....
	agistment income				
	1.0 head/ha	@	\$1.50 /head/wk for 17 wks	25.50	.....
<b>A. TOTAL INCOME</b>				<b>574.25</b>	
<b>VARIABLE COSTS</b>					
				\$/ha	
<b>Land Preparation</b>					
Controlled grazing					
1	Slashing	2.10 ha/hr	@ \$11.25 /hr	5.36	.....
1	Knock down spray		@ \$50.00 /ha	50.00	.....
<b>Sowing</b>					
	seed 10 kg/ha	@	\$3.50 /kg	35.00	.....
	sowing operation	4.20 ha/hr	@ \$19.16 /hr	4.56	.....
<b>Fertilizers</b>					
	150 kg/ha of DAP + 25% S	@	\$630.00 /tonne	94.50	.....
	100 kg/ha of Urea	@	\$460.00 /tonne	46.00	.....
1	application	7.20 ha/hr	@ \$17.76 /hr	2.47	.....
	(preplanting)				
1	aerial application	@	\$14.00 /ha	14.00	.....
<b>Weed Control</b>					
	3.0 L/ha of Atrazine	@	\$5.00 /L	15.00	.....
1	application	9.36 ha/hr	@ \$19.01 /ha	2.03	.....
<b>Harvesting</b>					
	own harvester	3.15 ha/hr	@ \$94.63 /hr	30.04	.....
<b>B. TOTAL VARIABLE COSTS</b>				<b>298.96</b>	
<b>C. GROSS MARGIN (A - B) PER HECTARE</b>				<b>275.29</b>	

GROSS MARGIN BUDGET

Enterprise Name: NO-TILL MAIZE

Region: Douglas/Daly

Date: October 1990

				\$/ha	Your Estimate
<b>INCOME</b>					
Yield	2.5 t/ha	@	\$250.00 /tonne (on farm)	625.00	.....
Other income:	fertiliser subsidy				
	300 kg/ha	@	\$95.00 /tonne	28.50	.....
	agistment income			20.00	.....
<b>A. TOTAL INCOME</b>				<b>673.50</b>	
<b>VARIABLE COSTS</b>					
				\$/ha	
<b>Land Preparation</b>					
Controlled grazing					
1	Slashing	2.10 ha/hr	@ \$11.25 /hr	5.36	.....
1	Knock down spray		@ \$50.00 /ha	50.00	.....
<b>Sowing</b>					
seed	17 kg/ha	Hycorn 80	@ \$4.80 /kg	81.60	.....
sowing operation		4.20 ha/hr	@ \$19.16 /hr	4.56	.....
<b>Fertilizers</b>					
150	kg/ha of DAP + 25% S		@ \$630.00 /tonne	94.50	.....
150	kg/ha of Urea		@ \$460.00 /tonne	69.00	.....
1	application	7.20 ha/hr	@ \$17.76 /hr	2.47	.....
	(preplanting)				
1	aerial application		@ \$14.00 /ha	14.00	.....
<b>Weed Control</b>					
3.0	L/ha of Atrazine		@ \$5.00 /L	15.00	.....
2.0	L/ha of Dual		@ \$17.00 /L	34.00	.....
	for control of Broadleaf Weeds and Grasses				
1	application	9.36 ha/hr	@ \$19.01 /ha	2.03	.....
<b>Harvesting</b>					
own harvester		2.10 ha/hr	@ \$94.63 /hr	45.06	.....
<b>B. TOTAL VARIABLE COSTS</b>				<b>417.58</b>	
<b>C. GROSS MARGIN (A - B) PER HECTARE</b>				<b>255.92</b>	



## 5.2 'SPECIALTY' CROPS

GROSS MARGIN BUDGET

Enterprise Name: SESAME

Region: Douglas/Daly

Date: October 1990

				\$/ha	Your Estimate
INCOME					
Yield	0.35 t/ha	@	\$900.00 /tonne (on farm)	315.00	.....
Other income: fertilizer subsidy 245 kg/ha @ \$95.00 /tonne				23.28	.....
<hr/>					
A. TOTAL INCOME				338.28	
<hr/>					
VARIABLE COSTS				\$/ha	
Land Preparation					
1	Disc Ploughing	4.16 ha/hr	@ \$39.73 /hr	9.55	.....
1	Chisel Ploughing	4.48 ha/hr	@ \$39.48 /hr	8.81	.....
1	Cultivation	6.30 ha/hr	@ \$21.81 /hr	3.46	.....
2	Harrowings	8.40 ha/hr	@ \$17.42 /hr	4.15	.....
Sowing					
	seed:	3 kg/ha	@ \$1.00 /kg	3.00	.....
	sowing operation:	6.30 ha/hr	@ \$26.00 /hr	4.13	.....
Fertilizers					
	155 kg/ha CL 19:13	@	\$530.00 /tonne	82.15	.....
	90 kg/ha Urea	@	\$460.00 /tonne	41.40	.....
	1 spreading	7.20 ha/hr	@ \$17.76 /hr	2.47	.....
Weed Control					
	Allowance for weed control			20.00	.....
Pest Control					
	350.0 g a.c./ha of methomyl for control of heliothis and leaf roller			15.00	.....
	1 aerial spray	@	\$14.00 /ha	14.00	.....
Harvesting					
	own harvester	2.5 ha/hr	@ \$94.63 /hr	37.85	.....
<hr/>					
B. TOTAL VARIABLE COSTS				245.97	
<hr/>					
C. GROSS MARGIN (A - B) PER HECTARE				92.31	
<hr/>					



GROSS MARGIN BUDGET

Enterprise Name: B-GRADE MUNGBEANS

Region: Douglas/Daly  
Date: October 1990

				\$/ha	Your Estimate
INCOME					
Yield	0.68 t/ha	@	\$320.00 /tonne (on farm)	217.60	.....
	0.12 t/ha	@	\$230.00 /tonne (on farm)	27.60	.....
Other income: fertilizer subsidy					
	110 kg/ha	@	\$95.00 /tonne	10.45	.....
<hr/>					
A. TOTAL INCOME				255.65	
<hr/>					
VARIABLE COSTS				\$/ha	
Land Preparation					
1	Disc Ploughing	4.16 ha/hr	@ \$39.73 /hr	9.55	.....
2	Cultivations	6.30 ha/hr	@ \$21.81 /hr	6.92	.....
Sowing					
	seed: 35 kg/ha		@ \$0.90 /kg	31.50	.....
	sowing operation:	4.20 ha/hr	@ \$19.16 /hr	4.56	.....
Fertilizers					
	110 kg/ha Superphosphate		@ \$350.00 /tonne	38.50	.....
1	application	7.20 ha/hr	@ \$17.76 /hr	2.47	.....
Weed Control					
	2.0 L/ha of Treflan		@ \$7.25 /L	14.50	.....
	for control of Grasses				
1	application	9.36 ha/hr	@ \$19.01 /hr	2.03	.....
Pest Control					
	2.0 L/ha of Thiodan		@ \$7.00 /L	14.00	.....
	for control of pod damaging insects				
1	aerial spray		@ \$14.00 /ha	14.00	.....
Harvesting					
	own harvester	2.5 ha/hr	@ \$94.63 /hr	37.85	.....
<hr/>					
B. TOTAL VARIABLE COSTS				175.88	
<hr/>					
C. GROSS MARGIN (A - B) PER HECTARE				79.77	
<hr/>					

GROSS MARGIN BUDGET

Enterprise Name: CAVALCADE HAY

Region: Douglas/Daly  
Date : October 1990

		\$/ha	Your Estimate
<b>INCOME</b>			
Yield	5.0 t/ha @ 40 bales/t @ \$3.50/bale (on farm)	700.00	.....
Other Income:	fertiliser subsidy 250 kg/ha @ \$95.00/tonne	23.75	.....
<b>A. TOTAL INCOME</b>		<b>723.75</b>	
<b>VARIABLE COSTS</b>			
		\$/ha	
<b>Land Preparation</b>			
1	Disc Ploughing 4.16 ha/hr @ \$39.73/hr	9.55	.....
2	Cultivations 6.30 ha/hr @ \$21.81/hr	6.92	.....
<b>Sowing</b>			
	seed 5 kg/ha @ \$10.00/kg	50.00	.....
	sowing operation 7.20 ha/hr @ \$17.76/hr	2.47	.....
<b>Fertilizers</b>			
	150 kg/ha of Single Super @ \$350.00/tonne	52.50	.....
	100 kg/ha of MOP @ \$440.00/tonne	44.00	.....
	1 application 7.20 ha/hr @ \$17.76/hr	2.47	.....
	1 aerial application @ \$14.00/ha	14.00	.....
<b>Weed Control</b>			
	1.0 L/ha of Treflan @ \$5.00/L	5.00	.....
	2.0 L/ha of Basagran @ \$42.00/L	84.00	.....
	3 applications 9.36 ha/hr @ \$19.01/ha	6.09	.....
<b>Harvesting</b>			
	Mow/Condition 0.8 ha/hr @ \$16.96/hr	21.20	.....
	Raking 2.0 ha/hr @ \$11.80/hr	5.90	.....
	Baling 0.6 ha/hr @ \$15.46/hr	25.77	.....
<b>B. TOTAL VARIABLE COSTS</b>		<b>329.87</b>	
<b>C. GROSS MARGIN (A - B) PER HECTARE</b>		<b>393.88</b>	

GROSS MARGIN BUDGET

Enterprise Name: RICE

Region: Upper Adelaide River

Date: September 1990

		\$/ha	Your Estimate
<b>INCOME</b>			
Yield	2.5 t/ha @ \$230.00 /tonne (on farm)	575.00	.....
Other income: fertilizer subsidy	175 kg/ha @ \$95.00 /tonne	16.63	.....
<b>A. TOTAL INCOME</b>		<b>591.63</b>	
<b>VARIABLE COSTS</b>			
		\$/ha	
<b>Land Preparation</b>			
1 laser levelling	1 ha/hr @ \$45.00 /hr (assume one third of area is levelled each year)	15.00	.....
2 ploughings	0.95 ha/hr @ \$17.81 /hr	37.49	.....
bank maintenance		9.05	.....
<b>Sowing</b>			
seed:	100 kg/ha @ \$250.00 /tonne	25.00	.....
sowing operation:	2.00 ha/hr @ \$15.66 /hr	7.83	.....
<b>Fertilizers</b>			
200 kg/ha of urea	@ \$460.00 /tonne	92.00	.....
100 kg/ha of Topfos + 2.5%Zn	@ \$535.00 /tonne	53.50	.....
<b>Application:</b>			
urea	1.26 ha/hr @ \$15.66 /hr (120kg of urea is drilled by combine, Topfos sown with seed)	12.43	.....
80kg of urea is aerielly topdressed	@ \$15.00 /ha	15.00	.....
<b>Weed Control</b>			
6.0 L/ha of Stam	@ \$7.00 /L	42.00	.....
2.0 L/ha of Saturn	@ \$12.50 /L (for control of barnyard grass)	25.00	.....
aerial application:	@ \$12.00 /ha	12.00	.....
<b>Pest Control</b>			
ammunition (for birds)	@ \$10.00 /ha	10.00	.....
allowance for insect control		35.00	.....
<b>Harvesting</b>			
contract harvester:	7.0 t/hr @ \$180.00 /hr	64.29	.....
<b>B. TOTAL VARIABLE COSTS</b>		<b>455.59</b>	
<b>C. GROSS MARGIN (A - B) PER HECTARE</b>		<b>136.04</b>	

GROSS MARGIN BUDGET

Enterprise Name: SECA

Region: Douglas/Daly  
Date: October 1990

				\$/ha	Your Estimate
INCOME					
Yield	210	kg/ha	@ \$7.00 /kg	1470.00	.....
Other income: fertiliser subsidy	250	kg/ha	@ \$95.00 /tonne	23.75	.....
<b>A. TOTAL INCOME</b>				<b>1493.75</b>	
-----					
VARIABLE COSTS				\$/ha	
Land Preparation					
1	Disc Ploughing	4.16	ha/hr @ \$39.73 /hr	9.55	.....
2	Cultivations	6.30	ha/hr @ \$21.81 /hr	6.92	.....
Sowing					
	seed 5 kg/ha		@ \$14.00 /kg	70.00	.....
	sowing operation	4.20	ha/hr @ \$19.16 /hr	4.56	.....
Fertilizers					
	200 kg/ha of Single Super		@ \$350.00 /tonne	70.00	.....
	50 kg/ha of MOP		@ \$440.00 /tonne	22.00	.....
	1 application	7.20	ha/hr @ \$17.76 /hr	2.47	.....
Weed Control					
	Allowance for weed control			70.00	.....
Harvesting					
	own harvester	1.00	ha/hr @ \$94.63 /hr	94.63	.....
<b>B. TOTAL VARIABLE COSTS</b>				<b>350.13</b>	
<b>C. GROSS MARGIN (A - B) PER HECTARE</b>				<b>1143.62</b>	

GROSS MARGIN BUDGET

Enterprise Name: PEANUTS

Region: Douglas/Daly

Date: October 1989

				\$/ha	Your Estimate
INCOME					
Yield	1.53 t/ha	@	\$610.00 /tonne	933.30	.....
Other income: fertilizer subsidy					
	110 kg/ha	@	\$95.00 /tonne	10.45	.....
	500 kg/ha	@	\$70.00 /tonne	35.00	.....
-----					
A. TOTAL INCOME				978.75	
-----					
VARIABLE COSTS				\$/ha	
Land Preparation					
1	Disc Ploughing	4.16 ha/hr	@ \$39.73 /hr	9.55	.....
1	Chisel Ploughing	4.48 ha/hr	@ \$39.48 /hr	8.81	.....
1	Chisel/Harrow'g	4.48 ha/hr	@ \$40.39 /hr	9.02	.....
1	Harrowing	8.40 ha/hr	@ \$17.42 /hr	2.07	.....
Sowing					
seed:	100 kg/ha of Florunner	@	\$2.20 /kg	220.00	.....
sowing operation:	4.20 ha/hr	@	\$19.16 /hr	4.56	.....
Fertilizers					
110 kg/ha of TSP + 10% S	@	\$555.00 /tonne		61.05	.....
500 kg/ha of Gypsum	@	\$130.00 /tonne		65.00	.....
1 application(TSP)	7.20 ha/hr	@	\$17.76 /hr	2.47	.....
1 application(Gyp)	1.80 ha/hr	@	\$17.26 /hr	9.59	.....
Interrow Cultivation/Hilling					
1	Cultivation	2.94 ha/hr	@ \$17.18	5.84	.....
Weed Control					
2.0	L/ha of Treflan	@	\$7.25 /L	14.50	.....
for control of Grasses					
2.0	L/ha of Basagran	@	\$21.60 /L	43.20	.....
for control of Broadleaf Weeds					
2	applications	9.36 ha/hr	@ \$19.01 /ha	4.06	.....
Disease Control					
2.0	L/ha of Bravo	@	\$13.00 /L	78.00	.....
for control of Leaf Spot Fungus & Rust					
3	applications	9.36 ha/hr	@ \$19.01 /ha	6.09	.....
Growth Regulant					
0.6	kg/ha of Alar	@	\$80.00 /kg	48.00	.....
1	application	9.36 ha/hr	@ \$19.01 /ha	2.03	.....
Harvesting					
pulling/cutting:	1.31 ha/hr	@	\$22.87 /hr	17.41	.....
threshing:	0.58 ha/hr	@	\$27.36 /hr	47.50	.....
-----					
B. TOTAL VARIABLE COSTS				658.75	
-----					
C. GROSS MARGIN (A - B) PER HECTARE				320.00	
-----					



6. FIELD CROP YIELDS: HISTORICAL DATA

### PEANUTS

Areas Sown, Commercial and Test Yields by Season

Year	83/84	4/85	5/86	86/87	87/88	88/89	89/90
Area Sown (ha)		60	175	310	110	20	0
Commercial Yield/ Area Sown (t/ha)		1.2	1.7	1.2	2.1	0.5	NA
Test Yield/ Test Area Sown	-	-	2.8	2.5	3.1	2.2	NA

### SESAME

Areas Sown, Commercial and Test Yields by Season

Year	83/84	84/85	85/86	86/87	87/88	88/89	89/90
Area Sown (ha)	-	-	145	480	585	602	205
Commercial Yield/ Area Sown (t/ha)	-	-	0.8	0.2	0.4	0.2	0.23
Test Yield/ Test Area Sown	-	-	-	0.7	1.2	0.8	NA

### MUNGBEANS

Areas Sown, Commercial and Test Yields by Season

Year	83/84	84/85	85/86	86/87	87/88	88/89	89/90
Area Sown (ha)	202	117	264	63	238	311	0
Commercial Yield/ Area Sown (t/ha)	0.6	1.2	0.4	-	0.8	0.7	NA
Test Yield/ Test Area Sown	1.9	1.7	1.2	-	1.3	1.0	NA



### GRAIN SORGHUM

Areas Sown, Commercial and Test Yields by Season

Year	83/84	4/85	5/86	86/87	87/88	88/89	89/90
Area Sown (ha)	637	612	992	2335	1845	2382	2590
Commercial Yield/ Area Sown (t/ha)	2.3	2.5	1.8	1.6	2.1	1.8	1.3
Test Yield/ Test Area Sown	4.8	3.8	4.1	-	5.1	5.2	NA

### MAIZE

Areas Sown, Commercial and Test Yields by Season

Year	83/84	84/85	85/86	86/87	87/88	88/89	89/90
Area Sown (ha)	978	1304	1701	1100	1740	310	380
Commercial Yield/ Area Sown (t/ha)	2.3	2.7	0.8	1.5	0.7	1.8	0.45
Test Yield/ Test Area Sown	5.3	5.8	2.9	2.4	4.0	NA	NA

### SOYBEANS

Areas Sown, Commercial and Test Yields by Season

Year	83/84	84/85	85/86	86/87	87/88	88/89	89/90
Area Sown (ha)	404	692	383	106	110	80	0
Commercial Yield/ Area Sown (t/ha)	1.9	0.5	0.7	1.1	1.1	0.3	NA
Test Yield/ Test Area Sown	3.8	2.8	2.5	-	2.0	0.3	NA

**APPENDICES**

## Appendix A

### DETAILS OF MACHINERY, WORK RATES, COSTS, ETC. USED IN GROSS MARGIN BUDGETS

Operation	Implement	Tractor Details			Implement Details			Field Op Effic'y (%)	Work Rate (ha/hr)
		Avail PTO(kW)	Power PTO(hp)	Price (\$)	Width (m)	Price (\$)	Speed (kph)		
Ploughing	Offset Discs	145	200	125000	8.0	42000	8.0	65.0	4.16
Chisel Plough	Chisel Plough	145	200	125000	8.0	39000	8.0	70.0	4.48
Chisel/Harrow	Chisel+Harrow	145	200	125000	8.0	50000	8.0	70.0	4.48
Cultivation	Cultivator	145	200	125000	10.0	23000	9.0	70.0	6.30
Harrowing	Harrow	66	75	55000	12.0	13000	10.0	70.0	8.40
Sowing	8 Row Planter	66	75	55000	6.0	24000	10.0	70.0	4.20
Broadcasting	Spreader	66	75	55000	10.0	9000	12.0	60.0	7.20
Broadcasting	Spreader(gypsum)	66	75	55000	6.0	7000	5.0	60.0	1.80
Interrow Cult	Rolling Cult.	66	75	55000	6.0	20000	7.0	70.0	2.94
Spraying	Boom Spray	66	75	55000	12.0	14000	12.0	65.0	9.36
Harvesting	Puller/Cutter	66	75	55000	3.0	22000	7.3	60.0	1.31
Harvesting	Thresher	66	75	55000	3.0	45000	3.2	60.0	0.58
Harvesting	Header (Sorghum)				6.0	210000	7.0	75.0	3.15
Harvesting	Header (Maize, Soybeans, Mungs, Sesame)				6.0	210000	5.0	70.0	2.10

Formulas for calculations: A. B. C. D. E. F.  

$$F. = (B * D * E)$$

### DETAILS OF MACHINERY, WORK RATES, ETC. USED IN GROSS MARGIN BUDGETS (cont.)

Implement	Fuel Price (c/L)	Repairs & Maint. % PC	Expected Life (hrs)	Tractor Implmt (hrs)	Fuel Used (L/hr)	Fuel & Oil (\$/hr)	Repairs&Maint Tractor (\$/hr)	Implmnt (\$/hr)	Budget Cost (\$/hr)	
	Offset Discs	75.0	72.0	20.0	10000	2400	33.0	27.23	9.00	3.50
Chisel Plough	75.0	72.0	20.0	10000	2400	33.0	27.23	9.00	3.25	39.48
Chisel+Harrow	75.0	72.0	20.0	10000	2400	33.0	27.23	9.00	4.17	40.39
Cultivator	75.0	72.0	20.0	10000	2400	33.0	10.89	9.00	1.92	21.81
Harrow	75.0	72.0	20.0	10000	2400	15.0	12.38	3.96	1.08	17.42
8 Row Planter	75.0	72.0	20.0	10000	2400	16.0	13.20	3.96	2.00	19.16
Spreader	75.0	72.0	30.0	10000	1200	14.0	11.55	3.96	2.25	17.76
Spreader(gypsum)	75.0	72.0	30.0	10000	1200	14.0	11.55	3.96	1.75	17.26
Rolling Cult.	75.0	72.0	20.0	10000	2400	14.0	11.55	3.96	1.67	17.18
Boom Spray	75.0	72.0	30.0	10000	1200	14.0	11.55	3.96	3.50	19.01
Puller/Cutter	75.0	72.0	40.0	10000	1800	17.0	14.03	3.96	4.89	22.87
Thresher	75.0	72.0	25.0	10000	1200	17.0	14.03	3.96	9.38	27.36
Header	75.0		50.0		1800	44.0	36.30		58.33	94.63

Formulas (cont.) G. H. I. J. K. L. M.= N.= O.= P.=  

$$M. = 1.1G * L$$

$$N. = (A * H) / (J * 100)$$

$$O. = (C * I) / (K * 100)$$

$$P. = M + N + O$$

#### Notes:

- Columns F and P provide estimates used in the standardised GM budgets.
- 1. Reductions in field operating efficiency occur due to; turning at the end of a paddock, failure to use full implement width, time taken to load seed and fertilizer, unloading of harvested crops, minor adjustments and repairs and lubrication whilst in the field.
- 2. Actual header speed and efficiency will vary for each crop.
- 3. The fuel price is calculated net of fuel rebates.
- 4. R&M costs are expressed as a percentage of the new purchase price.

## Appendix A (cont.)

### ESTIMATES OF WORK RATES

Formula for calculations:						
	A.	B.	C.	(A*B*C)/1000		
Operation	Implement	Implement Details			Work	Your
		Width (m)	Speed (kph)	Effic'y (%)	Rate (ha/hr)	Estimated Work Rate
Ploughing	Offset Discs	8.0	8.0	65	4.16	.....
Chisel Plough	Chisel Plough	8.0	8.0	70	4.48	.....
Chisel/Harrow	Chisel+Harrows	8.0	8.0	70	4.48	.....
Cultivation	Cultivator	10.0	9.0	70	6.30	.....
Harrowing	Harrows	12.0	10.0	70	8.40	.....
Sowing	Row Crop Planter	6.0	10.0	70	4.20	.....
Broadcasting	Spreader	10.0	12.0	60	7.20	.....
Broadcasting	Spreader	6.0	5.0	60	1.80	.....
Interrow Cult	Rolling Cult.	6.0	7.0	70	2.94	.....
Spraying	Boom Spray	12.0	12.0	65	9.36	.....
Harvesting	Puller/Cutter	3.0	7.3	60	1.31	.....
Harvesting	Thresher	3.0	3.2	60	0.58	.....
Harvesting	Header(Sorghum)	6.0	7.0	75	3.15	.....
Harvesting	Header (Others )	6.0	5.0	70	2.10	.....

### ESTIMATE OF OPERATIONAL COSTS

Formula:								
Name of Operation	A.		B.		C.		A+B+C	
	Fuel & Oil (\$/hr)	Your Own Est.	R & M Tractor (\$/hr)	Your Own Est.	R & M Implement (\$/hr)	Your Own Est.	Budget Cost (\$/hr)	Your Own Est.
Disc Plough	27.23	.....	9.00	.....	3.50	.....	39.73	.....
Chisel Plough	27.23	.....	9.00	.....	3.25	.....	39.48	.....
Chisel/Harrow	27.23	.....	9.00	.....	4.17	.....	40.39	.....
Cultivating	10.89	.....	9.00	.....	1.92	.....	21.81	.....
Harrowing	12.38	.....	3.96	.....	1.08	.....	17.42	.....
Sowing (8-Row Planter)	13.20	.....	3.96	.....	2.00	.....	19.16	.....
Spreading	11.55	.....	3.96	.....	2.25	.....	17.76	.....
Spreading (gypsum)	11.55	.....	3.96	.....	1.75	.....	17.26	.....
Interrow Cultivate	11.55	.....	3.96	.....	1.67	.....	17.18	.....
Boom Spray	11.55	.....	3.96	.....	3.50	.....	19.01	.....
Puller/Cutter	14.03	.....	3.96	.....	4.89	.....	22.87	.....
Thresher	14.03	.....	3.96	.....	9.38	.....	27.36	.....
Heading	14.52	.....	-	.....	58.33	.....	94.63	.....

\* Actual header speed and efficiency will vary for each crop.

Appendix B

PRICES USED IN THE STANDARDISED GROSS MARGIN BUDGETS

August 1990

CHEMICALS

	\$/L
Atrazine	4.50
Dual	17.00
Treflan	7.25
Decis	34.00
Endosulphan	8.00
Saturn	11.50
Basagran	21.60
Bravo	13.00
Roundup CT	16.25
Thiodan	7.00
2,4-D Ester	10.00

FERTILIZERS (landed D-Daly)  
\$/tonne

MAP	570
DAP	570
TSP	525
Gypsum	130
CL 19:13	530
Zinc	2400
Sulphur	800
DAP + 25% S	630
DAP + 10% S	
+ 2.5% Zn	644
TSP + 10% S	555
TSP + 25% S	595
Gran. Urea	460
Sulph. Amon.	430
Muriate Pot.	440
Single Super	350

FARM TRACTORS

Available Power PTO(kW)	1990 Price (\$'000)
145	125
66	55
56	50

FARM IMPLEMENTS

Type	(\$'000)
Offset Discs	42
Chisel Plough	39
Harrows	13
8 Row Planter	34
Spreader (2t bin)	9
Boom Spray (800-1000L)	14
Header	210
Rolling	
Cultivator	20
Puller/Cutter	22
Thresher	45
Cultivator	23
Air Seeder Box	25

### Appendix C

The information and expertise provided by the following is embedded in this booklet and is greatly appreciated:

AgServ Industries, Berrimah.  
Australian Customs Service, Darwin.  
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Bayer Aust. Ltd.  
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Elders, Katherine.  
Darren Oemcke  
The Grain Marketing Board  
Hi Fert Pty. Ltd., Adelaide.  
Val Michell  
Northern Cement Pty. Ltd., Darwin.  
Huyn Ngo  
Tom Price  
Robyn Rann  
Kandiah Thiagalingam  
Narelle Thomas  
Top End Fertilizer Supplies, Katherine.  
Steve Yeates

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